

LANTANA CAMARA var. SPLENDENS (Medic.) Moldenke, comb. & stat. nov.

Lantana splendens Medic., Act. Acad. Theod. Palat. Phys. 3: 226—227. 1775.

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ADDITIONAL NOTES ON THE ERIOCAULACEAE. LX

Harold N. Moldenke

PAEPALANTHUS RIGIDULUS Mart.

Additional bibliography: Moldenke, Phytologia 33: 48 & 58. 1976.

Silveira (1928) cites A. Silveira 826 from Minas Gerais, collected at Lavras Novas in 1927, while Ruhland (1903) cites only the type collection and P. Clausen s.n. from Bahia in the Vienna herbarium. The species is apparently very closely related to P. bromelioides Alv. Silv., P. corymbosus (Bong.) Kunth, P. lanceolatus Körn., P. melaleucus (Bong.) Kunth, and P. vellozioides Körn. It has been collected in anthesis in September and October.

The Ackerman s.n. and Martius 874, distributed as P. rigidulus, are actually P. melaleucus (Bong.) Kunth.

Citations: BRAZIL: Bahia: Martius s.n. [Rio de Contas; Macbride photos 18722] (B—isotype, B—isotype, Mu—type, N—photo of type, W—photo of type, Z—isotype). MOUNTED ILLUSTRATIONS: drawings & notes by Körnicke (B).

PAEPALANTHUS RIGIDUS (Bong.) Kunth, Enum. Pl. 3: 515. 1841.

Synonymy: Eriocaulon rigidum Bong., Mém. Acad. Imp. Sci. St. Pétersb., ser. 6, 1: 621. 1831 [not E. rigidum Mart., 1841].

Paepalanthus rigidus Kunth apud Körn. in Mart., Fl. Bras. 3 (1): 327. 1863. Dupatya rigida (Bong.) Kuntze, Rev. Gen. Pl. 2: 746. 1891. Dupatya rigida Kuntze apud Durand & Jacks., Ind. Kew. Suppl. 1, imp. 1, 145. 1902.

Bibliography: Bong., Mém. Acad. Imp. Sci. St. Pétersb., ser. 6, 1: 621. 1831; Bong., Ess. Monog. Erioc. 21—22. 1831; Bong., Mém. Acad. Imp. Sci. St. Pétersb., ser. 6, 3: pl. 21. 1835; Steud., Nom. Bot., ed. 2, 1: 586. 1840; Kunth, Enum. Pl. 3: 515, 530, 572, 614, & 625. 1841; Mart., Flora 24, Beibl. 2: 35 & 36. 1841; D. Dietr., Syn. Pl. 5: 261. 1852; Steud., Syn. Pl. Glum. 2: [Cyp.] 274 & 334. 1855; Körn. in Mart., Fl. Bras. 3 (1): 327—328 & 507. 1863; Kuntze, Rev. Gen. Pl. 2: 746. 1891; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 1, 1: 879 (1893) and imp. 1, 2: 402. 1894; Durand & Jacks., Ind. Kew. Suppl. 1, imp. 1, 145. 1902; Ruhl. in Engl., Pflanzenreich 13 (4-30): 189, 194, 284, 287, & 291. 1903; Alv. Silv., Fl. Mont. 1: 412. 1928; Stapf, Ind. Lond. 3: 91. 1930; Durand & Jacks., Ind. Kew. Suppl. 1, imp.

2, 145. 1941; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 2, 1: 879 (1946) and imp. 2, 2: 402. 1946; Moldenke, Known Geogr. Distrib. Erioc. 15, 31, 39, & 53. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 87 & 211. 1949; Moldenke, Phytologia 4: 203. 1953; Durand & Jacks., Ind. Kew. Suppl. 1, imp. 3, 145. 1959; Moldenke, Résumé 102, 282, 291, & 489. 1959; Moldenke, Résumé Suppl. 1: 22. 1959; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 3, 1: 879 (1960) and imp. 3, 2: 402. 1960; Tomlinson in C. R. Metcalfe, Anat. Monocot. 3: 175, 184, 186, 187, & 191. 1969; Moldenke, Fifth Summ. 1: 166 & 485 (1971) and 2: 510, 589, & 957. 1971; Moldenke, Phytologia 25: 155 (1973), 26: 202, 249, 250, & 259 (1973), 29: 313 & 314 (1974), 29: 499 (1974), and 30: 274. 1975.

Illustrations: Bong., Mém. Acad. Imp. Sci. St. Pétersb., ser. 6, 3: pl. 21. 1835.

This species is apparently based on L. Riedel 1414 from "bei Tejuco, an etwas feuchten Örtlichkeiten höherer Berge", Minas Gerais, Brazil, probably deposited in the Leningrad herbarium. The original (1831) description is "Caule ramoso, folioso, inferne denudato, oblique striato; ramis brevibus, erectis; foliis amplexicaulis, erectis, lanceolatis, acuminatis, planiusculis; pedunculis sub-pubescentibus; vaginis glabris." The Eriocaulon rigidum Mart., referred to in the synonymy above, is a synonym of P. falcifolius Körn.

Paepalanthus rigidus is obviously closely related to P. brasiliensis (Mart.) Mart., P. ciliatus (Bong.) Kunth, and P. polyanthus (Bong.) Kunth. Ruhland (1903) cites only the original collection, but Silveira (1928) cites A. Silveira 490 from the Serra do Chrystaes in Minas Gerais, Brazil, collected in 1908. Martius notes for his unnumbered collection, cited below, "Pili bractearum perigoniorumque tuberculati; in P. rigido Kth. non tuberculati", but I am not convinced that this is an important character.

The Archer 4111 and M. A. Chase 10429, distributed as P. rigidus, are actually P. denudatus Körn., Martius 880 is a cotype collection of P. falcifolius Körn., P. Clausen s.n. [Aug.-April 1840] is P. hilairi Körn., and Martius 888 is P. hilairi var. maximiliani Ruhl.

Citations: BRAZIL: Minas Gerais: Martius s.n. [in Serro Frio] (Mu); L. Riedel 1414 (B--isotype, N--photo of isotype, S--isotype, Ut--376--isotype, Z--photo of isotype). MOUNTED ILLUSTRATIONS: drawings & notes by Körnicke (B).

PAEPALANTHUS RIPARIUS Moldenke, N. Am. Fl. 19: 42-43. 1937.

Bibliography: Moldenke, N. Am. Fl. 19: 42-43. 1937; Moldenke, Phytologia 1: 334, 351, & 361. 1939; León, Fl. Cuba, imp. 1, 1: 283. 1946; Moldenke, Alph. List Cit. 1: 184. 1946; Moldenke, Known Geogr. Distrib. Erioc. 5 & 53. 1946; Hill & Salisbury, Ind. Kew. Suppl. 10: 158. 1947; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 44 & 211. 1949; Moldenke, Résumé 52 & 489. 1959;

Moldenke, Fifth Summ. 1: 97 (1971) and 2: 957. 1971; León & Alain, Fl. Cuba, imp. 2, 1: 283 & 428. 1974.

PAEPALANTHUS ROBUSTUS Alv. Silv., Fl. Serr. Min. 53. 1908 [not P. robustus Gleason, 1931].

Synonymy: Paepalanthus robustus Alv. Silv., Fl. Mont. 1: pl. 128, sphalm. 1928.

Bibliography: Alv. Silv., Fl. Serr. Min. 53. 1908; Fedde & Schust. in Just, Bot. Jahresber. 46 (2): 4. 1924; Alv. Silv., Fl. Mont. 1: 194--195 & 412, pl. 128. 1928; A. W. Hill, Ind. Kew. Suppl. 8: 169. 1933; Wangerin in Just, Bot. Jahresber. 57 (1): 477. 1937; Fedde in Just, Bot. Jahresber. 59 (2): 19. 1939; Worsdell, Ind. Lond. Suppl. 2: 184. 1941; Moldenke, Known Geogr. Distrib. Erioc. 15 & 53. 1946; Moldenke, Phytologia 2: 380. 1947; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 87 & 211. 1949; Moldenke, Phytologia 4: 203. 1953; Mendes Magalhaes, Anais V Reun. Anual Soc. Bot. Bras. 236--237, 266--267, & 293. 1956; Moldenke, Résumé 102, 328, & 489. 1959; Rennó, Levant. Herb. Inst. Agron. Minas 71. 1960; Moldenke, Fifth Summ. 1: 166 (1971) and 2: 589 & 957. 1971; Moldenke, Phytologia 29: 483 (1974) and 30: 267. 1975.

Illustrations: Alv. Silv., Fl. Mont. 1: pl. 128. 1928.

The type of this species was collected by Álvaro Adolpho da Silveira (no. 364) "In campis arenosis, prope Capão Redondo, in Serra do Cipó", Minas Gerais, Brazil, in April, 1905, and is deposited in the Silveira herbarium.

The P. robustus Gleason, referred to above, is now known as P. gleasonii Moldenke.

Recent collectors have found P. robustus growing "in wet sand of grassland and sedge-land with shrubby areas and with sandstone and quartzite rocks and derived soils" and "in wet campo in area of campo and gallery margin", at altitudes of 1295--1300 m., flowering in February and November. Mendes Magalhães (1956) asserts that it blooms from January to August. Irwin and his associates refer to the plant as "acaulescent", with light-gray flower-heads.

Material has been misidentified and distributed in some herbaria as P. plumipes Alv. Silv. On the other hand, the Mello Barreto 2518 [Herb. Jard. Bot. Belo Horiz. 10676; Herb. U. S. Nat. Arb. 236372], distributed as P. robustus, is P. plumipes.

Citations: BRAZIL: Minas Gerais: Irwin, Maxwell, & Wasshausen 20532 (N); Tryon & Tryon 6782 (N, Z).

PAEPALANTHUS RORAIMENSIS Moldenke, Phytologia 2: 380, nom. nud. (1947), Alph. List Cit. 3: 975, hyponym (1949), Fieldiana Bot. 28: 121--122. 1951.

Bibliography: Moldenke, Phytologia 2: 380. 1947; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 64 & 211. 1949; Moldenke, Alph. List Cit. 3: 975. 1949; Moldenke, Fieldiana Bot. 28: 121--122. 1951; Moldenke, Phytologia 4: 203. 1953; J. A.

Steyerm., Fieldiana Bot. 28: 1157. 1957; Moldenke, Résumé 72, 75, & 489. 1959; G. Taylor, Ind. Kew. Suppl. 12: 101. 1959; J. A. Steyerm., Act. Bot. Venez. 1: 223. 1966; Moldenke, Phytologia 20: 297. 1970; Moldenke, Fifth Summ. 1: 125 & 130 (1971) and 2: 957. 1971.

Collectors have found this plant growing below waterfall spray among boulders or talus from sandstone bluffs at altitudes of 1400—2620 meters, flowering in August, September, November, December, and March. The Maguires describe it as "frequent" in wet or boggy areas on "montane slopes of escarpment".

Material has been misidentified and distributed in some herbaria as P. fratermus N. E. Br. and P. schomburgkii Klotzsch.

Citations: VENEZUELA: Bolívar: Bernardi 924 (N); B. Maguire 33383 (N), 33449 (N); Maguire & Maguire 40391a (Mu, N); Vareschi & Foldats 4924 (N). GUYANA: Abbensetts 6 (K); Ule 8553 (K).

PAEPALANTHUS RUFESCENS Alv. Silv., Fl. Mont. 1: 104—106, pl. 57 (2) & 65. 1928.

Bibliography: Alv. Silv., Fl. Mont. 1: 104—106 & 412, pl. 57 (2) & 65. 1928; Wangerin in Just, Bot. Jahresber. 57 (1): 477. 1937; A. W. Hill, Ind. Kew. Suppl. 9: 200. 1938; Worsdell, Ind. Lond. Suppl. 2: 184. 1941; Moldenke, Known Geogr. Distrib. Erioc. 15 & 53. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 87 & 211. 1949; Moldenke, Résumé 102 & 489. 1959; Moldenke, Fifth Summ. 1: 166 (1971) and 2: 957. 1971.

Illustrations: Alv. Silv., Fl. Mont. 1: pl. 57 (2) & 65. 1928.

This species is based on A. Silveira 512 from "In umbrosis, sub rupibus, locis arenosis, in campis altis inter Pouso Alto et Serro", Minas Gerais, Brazil, collected in April, 1907, and deposited in the Silveira herbarium. Silveira (1928) says of the species: "A P. brunnescente cum quo valde affinitatem habet, pilis acutis et foliis latioribus praecipue differt". Thus far it is known only from the original collection.

PAEPALANTHUS RUFICEPS Ruhl. in Engl., Pflanzenreich 13 (4-30): 144. 1903 [not P. ruficeps Körn., 1975].

Synonymy: Paepalanthus ruficeps Alv. Silv., Fl. Mont. 1: 412. 1928.

Bibliography: Ruhl. in Engl., Pflanzenreich 13 (4-30): 126, 144, 145, & 291. 1903; Prain, Ind. Kew. Suppl. 3: 126. 1908; Alv. Silv., Fl. Mont. 1: 88 & 412. 1928; Ruhl. in Engl. & Prantl, Nat. Pflanzenfam., ed. 2, 15a: 51. 1930; Moldenke, Known Geogr. Distrib. Erioc. 15 & 53. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 87 & 211. 1949; Moldenke, Résumé 102 & 489. 1959; Rennó, Levant. Herb. Inst. Agron. Minas 71. 1960; Moldenke, Fifth Summ. 1: 166 (1971) and 2: 957. 1971; Moldenke, Phytologia 29: 330 (1974), 30: 54 (1975), and 31: 404. 1975.

This species is based on Glaziou 19959 and Schwacke 8481 from the Diamantina region of Minas Gerais, Brazil, the former collected

at Serra dos Cristaes and the latter at Biribiry, both deposited in the Berlin herbarium where the Glaziou specimen was photographed by Macbride as his type photograph number 10641. Silveira (1928) cites an additional A. Silveira 484 from Guinda, Minas Gerais, collected in 1908. Ruhland (1903) comments that the "Species capitulorum et foliorum consistentia valde insignis, sed Paepalantho capiteni Koern. certe affinis". Thus far it is known only from these three collections.

Citations: BRAZIL: Minas Gerais: Glaziou 19959 [Macbride photos 10641] (B—cotype, N—photo of cotype, N—photo of cotype, W—photo of cotype, Z—cotype); Schwacke 8481 (B—cotype).

PAEPAALANTHUS RUFO-ALBUS Alv. Silv., Fl. Mont. 1: 94—96, pl. 60 & 61. 1928.

Bibliography: Alv. Silv., Fl. Mont. 1: 94—96 & 412, pl. 60 & 61. 1928; Prain, Ind. Kew. Suppl. 3: 200. 1908; Wangerin in Just, Bot. Jahresber. 57 (1): 477. 1937; Worsdell, Ind. Lond. Suppl. 2: 184. 1941; Moldenke, Known Geogr. Distrib. Erioc. 15 & 53. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 87 & 211. 1949; Moldenke, Résumé 102 & 489. 1959; Moldenke, Fifth Summ. 1: 166 (1971) and 2: 957. 1971.

Illustrations: Alv. Silv., Fl. Mont. 1: pl. 60 & 61. 1928.

The type of this species was collected by Álvaro Adolpho da Silveira (no. 695) "In campis arenosis, locis petrosis, prope Diamantina", Minas Gerais, Brazil, in April, 1918, and is deposited in the Silveira herbarium. The species thus far is known only from the original collection.

PAEPAALANTHUS SALTICOLA Herzog in Fedde, Repert. Spec. Nov. 29: 207—208, pl. 121, fig. i—t. 1931.

Bibliography: Herzog in Fedde, Repert. Spec. Nov. 29: 207—208, pl. 121, fig. i—t. 1931; A. W. Hill, Ind. Kew. Suppl. 9: 200. 1938; Fedde in Just, Bot. Jahresber. 59 (2): 20. 1939; Wangerin & Krause in Just, Bot. Jahresber. 60 (1): 455 [73]. 1941; Worsdell, Ind. Lond. Suppl. 2: 184. 1941; Moldenke, Known Geogr. Distrib. Erioc. 15 & 53. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 87 & 211. 1949; Moldenke, Phytologia 4: 203. 1953; Moldenke, Résumé 102 & 489. 1959; Moldenke, Fifth Summ. 1: 166 (1971) and 2: 957. 1971.

Illustrations: Herzog in Fedde, Repert. Spec. Nov. 29: pl. 121, fig. i—t. 1931.

This species is based on two collections by Freiherr Philipp von Lützelburg — no. 23906 collected at "Tiguité, Uira Poco, Uferwald" and no. 23912 collected at "Paporí, Trindade am Fall" in Alto Amazonas, Amazonas, Brazil, and deposited in the herbarium of the Botanische Staatssammlung in Munich, where the latter was photographed by Macbride as his type photograph number 18725.

Herzog (1931) comments that "Bei der vorliegenden neuen Art, die in der Kelch- und Blumenblättern an P. oyapockensis erinnert aber durch viele Merkmale wie Verzweigung, Blattinsertion und Stellung, kleinere Köpfchen, breitere Brakteen und die Form der

Narbenschenkel und Anhängsel von ihm gut unterschieden ist, beobachtet man sehr schön ein Verhalten der Petalen, das wohl öfters vorkommt (obschon z.B. Ruhland nichts darüber erwähnt), aber hier besonders stark hervortritt nämlich das relative Zurückbleiben der Petalen in der Entwicklung inter den Sepalen und dem Gynaecium. Zu einer Zeit in der die Narbenschkel schon nahe zu belegungsfähig sind findet man von den Kronblättern kaum eine Spur. Sie erscheinen dann in Form von Haarbüscheln innerhalb der vollentwickelten Sepalen, wachsen aber unter Ausbildung einer wasserhell durchsichtigen Spreite rasch heran und sie schliesslich beim Welken fer Narbenschkel voll entfaltet. In diesem Zustand biegen sie ihre Spitzen ein und verkleben mit den Narbenschkeln und Anhängseln des Griffels zu einer in der Mitte eingedrückten an 3 Stellen (zwischen den Petalen) apaltartig durchgebrochenen Kuppel. Sie sind in diesem Stadium nur noch schwer abzulösen und zerreißen leicht. Die Einbiegung an der Spitze finder aber schon vorher statt und in diesem Zustand (der Fruchtknoten ist schon angeschwollen und enthält halbreife Samen) ist auch noch der Bau der Narbenschkel und Anhängsel zu erkennen. Die Narbenschkel sind bandartig abgeflacht an der Spitze in 2 kurze Lappchen gespalten. Dazwischen stehen die ebenso langen dünnen nur an der Spitze keulig antennenartig angeschwollenen Anhängsel. Die Unterbringung diese neue Art bei der Untersektion Polyactis von Eriocaulopsis ist nur provisorisch. Beziehungen, wenn auch schwacher Art, zeigen sich noch zu den 'Leptocephali' von Eupaepalanthus."

The plant has been collected in flower and fruit in December. To me it bears very striking resemblance to P. tatei Moldenke, but thus far it is known only from the cotype collections. More material would be welcomed to decide this question.

Citations: BRAZIL: Amazônas: Lützelburg 23906 (Mu—cotype), 23912 [Macbride photos 18725] (Mu—cotype, N—photo of cotype, W—photo of cotype, Z—cotype).

PAEPAALANTHUS SAXATILIS (Bong.) Körn. in Mart., Fl. Bras. 3 (1): 365. 1863.

Synonymy: Eriocaulon saxatile Bong., Mém. Acad. Imp. Sci. St. Pétersb., ser. 6, 1: 625. 1831. Paepalanthus saxatilis Körn. in Mart., Fl. Bras. 3 (1): 365. 1863. Dupatya saxatilis (Bong.) Kuntze, Rev. Gen. Pl. 2: 746. 1891. Dupatya saxatilis Kuntze apud Durand & Jacks., Ind. Kew. Suppl. 1, imp. 1, 145. 1902.

Bibliography: Bong., Mém. Acad. Imp. Sci. St. Pétersb., ser. 6, 1: 625. 1831; Bong., Ess. Monog. Erioc. 25. 1831; Bong., Mém. Acad. Imp. Sci. St. Pétersb., ser. 6, 5: 19, pl. 30. 1839; Steud., Nom. Bot., ed. 2, 1: 586. 1840; Kunth, Enum. Pl. 3: 573 & 614. 1841; Walp., Ann. Bot. Syst. 1: 890. 1849; D. Dietr., Syn. Pl. 5: 266. 1852; Steud., Syn. Pl. Glum. 2: [Cyp.] 276 & 334. 1855; Körn. in Mart., Fl. Bras. 3 (1): 365—366, 369, & 507. 1863; Kuntze, Rev. Gen. Pl. 2: 746. 1891; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 1, 1: 879 (1893) and imp. 1, 2: 402.

1894; Durand & Jacks., Ind. Kew. Suppl. 1, imp. 1, 145. 1902; Ruhl. in Engl., Pflanzenreich 13 (4-30): 10, 125, 132, 136, 284, 287, & 291. 1903; Alv. Silv., Fl. Mont. 1: 413. 1928; Stapf, Ind. Lond. 3: 91. 1930; Durand & Jacks., Ind. Kew. Suppl. 1, imp. 2, 145. 1941; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 2, 1: 879 (1946) and imp. 2, 2: 402. 1946; Moldenke, Known Geogr. Distrib. Erioc. 15, 31, 39, & 53. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 87 & 211. 1949; Moldenke, Phytologia 4: 203. 1953; Durand & Jacks., Ind. Kew. Suppl. 1, imp. 3, 145. 1959; Moldenke, Résumé 102, 282, 292, 328, & 489. 1959; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 3, 1: 879 (1960) and imp. 3, 2: 402. 1960; Rennó, Levant. Herb. Inst. Agron. Minas 71. 1960; Tomlinson in C. R. Metcalfe, Anat. Monocot. 3: 190. 1969; Moldenke, Phytologia 20: 120 & 257. 1970; Moldenke, Fifth Summ. 1: 166 & 485 (1971) and 2: 511, 590, & 957. 1971; Moldenke, Phytologia 26: 191. 1973.

Illustrations: Bong., Mém. Acad. Imp. Sci. St. Pétersb., ser. 6, 5: pl. 30. 1839.

The type of this species was collected by Ludwig Riedel (no. 293) "in saxosis umbrosis Serra de St. Joze", Minas Gerais, Brazil, and is probably deposited in the Leningrad herbarium. Silveira (1928) cites a collection made by himself at São João d'El-Rei in 1896 in the same state — in fact, this may be from the type locality. The P. Clausen s.n. [Aug.-April 1840], however, distributed as P. saxatilis, is actually Leiothrix mucronata (Bong.) Ruhl., at least insofar as the Brussels herbarium specimen is concerned.

Citations: BRAZIL: Minas Gerais: Mello Barreto 17507 (N); L. Riedel 293 (B—isotype, Br—isotype, Mu—isotype, N—photo of isotype, S—isotype, Ut—377—isotype, Z—photo of isotype); A. Silveira 1243 (B). MOUNTED ILLUSTRATIONS: drawings & notes by Körnigke (B).

PAEPALANTHUS SAXICOLA Körn. in Mart., Fl. Bras. 3 (1): 455—456. 1863.

Synonymy: Dupatya saxicola (Körn.) Kuntze, Rev. Gen. Pl. 2: 746. 1891. Dupatya saxicola Kuntze apud Durand & Jacks., Ind. Kew. Suppl. 1, imp. 1, 145. 1902.

Bibliography: Körn. in Mart., Fl. Bras. 3 (1): 311, 455—456, & 507. 1863; Kuntze, Rev. Gen. Pl. 2: 746. 1891; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 1, 2: 402. 1894; Durand & Jacks., Ind. Kew. Suppl. 1, imp. 1, 145. 1902; Ruhl. in Engl., Pflanzenreich 13 (4-30): 25, 221, 284, & 291. 1903; Ruhl. in Engl. & Prantl, Nat. Pflanzenfam., ed. 2, 15a: 53. 1930; Durand & Jacks., Ind. Kew. Suppl. 1, imp. 2, 145. 1941; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 2, 2: 402. 1946; Moldenke, Known Geogr. Distrib. Erioc. 15, 31, & 53. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 87 & 211. 1949; Moldenke, Phytologia 4: 203. 1953; Durand & Jacks., Ind. Kew. Suppl. 1, imp. 3, 145. 1959; Moldenke, Résumé 68, 102, 282, & 489. 1959; Jacks. in Hook.

f. & Jacks., Ind. Kew., imp. 3, 2: 402. 1960; Moldenke, Résumé Suppl. 4: 4 & 5. 1962; Moldenke, Fifth Summ. 1: 118, 166, & 485 (1971) and 2: 957. 1971.

The type of this species was collected by Ludwig Riedel (no. 1478) in rocky places at the cataract of the small stream São Bartholomeu at Chapadão de São Marcos, Goiás, Brazil, and is deposited in the herbarium of the Botanisches Museum in Berlin where it was photographed by Macbride as his type photograph number 10642. Recent collectors have found the species in rocky sandy soil at 400 meters altitude, flowering in August and December. Ruhland (1903) cites only the original collection.

Additional citations: COLOMBIA: Amazonas: Garcia Barriga & Schultes 14138 (W-2057248, Z). BRAZIL: Goiás: L. Riedel 1478 [Macbride photos 10642] (B-type, N-photo of type, N-photo of type, S-isotype, Ut-378-isotype, W-photo of type).

PAEPALANTHUS SAXICOLA var. CONICUS Moldenke, Résumé Suppl. 4: 4 & 5, nom. nud. (1962), Bol. Soc. Venez. Cienc. Nat. 23: 300. 1963.

Bibliography: Moldenke, Résumé Suppl. 4: 4 & 5. 1962; Moldenke, Bol. Soc. Venez. Cienc. Nat. 23: 300. 1963; Moldenke, Fifth Summ. 1: 118 & 125 (1971) and 2: 957. 1971.

This variety is based on a collection made by Ernest Foldats (no. 3629) along the margin of the Río Atabapo, "cerca de la boca del río Atacavi", at Santa Cruz, Amazonas, Venezuela, on September 3, 1960, and is deposited in the Britton Herbarium at the New York Botanical Garden.

There is considerable doubt about the correct disposition of this plant. In a letter from Dr. Julian A. Steyermark, dated November 28, 1966, he speaks of finding another collection among the unidentified Cyperaceae in his herbarium, Vareschi & Foldats 4727, "which appears to be conspecific or nearly so with this variety, except for the more elongated scapes, which may be the result of the subaquatic habit.....However, Mr. Agostini has made the following observation, which should merit your attention: that the specimens have only 1 stamen, 2 bracts free at their base and coherent above, and the stamens have an elongated connective. He contends that these characters do not correspond to those of Paepalanthus nor to other genera of the Eriocaulaceae. He is wondering whether the specimens might belong to an unknown genus or to another family. I doubt this....." In my reply, dated December 12, 1966, I said, in part: "The specimen referred to by you has always been very questionable in my mind, and I have never been happy about its disposition. When the original specimen was sent to me as an undetermined Eriocaulaceae, I at once thought that it was not of that family. It looked to me then, and still does now, like it should be something in the Cyperaceae....I turned the plant over to Mr. Joseph Monachino. As you know, he is an extremely careful worker and has a tremendously large knowledge of plant identification. I asked him to dissect it and report to



me his decision as to what family it belonged to. I told him that it looked like Cyperaceae to me. His report to me sometime later was that it was definitely Eriocaulaceae. On the basis of that statement I shelved my reservations and attempted to match it in the South American Eriocaulaceae. The closest I could get was a photograph of the type of Paepalanthus saxicola, and so I proposed it as a variety of that species."

In a letter to me, dated May 12, 1967, my good friend, Getulio Agostini, reports on the details of his study of the two collections: "Con relación a la muestra de Paepalanthus saxicola var. conicus he llegado a los siguientes resultados: (Véase dibujo anexo).

- a. Todas las floras parecen iguales.
- b. Pocos pelos con ambas superficies lisas.
- c. Un bractea mayor externa (1).
- d. Una bractea ? menor cuyos margenes abrazan la flor (2).
- e. 1 estambra (estaminodio?) con el filamento casi totalmente adnato a uno de los segmentos del perianto (3).
- f. 2 segmentos de perianto libres en la base y en el ápice pero connados en la mitad (3).
- g. 1 pistilo bien desarrollado (4), que frecuentemente produce una sola semilla (5).
- h. 2 estigmas enteros (4, 5).
- i. 2 apendices estilares angostamente triangulares a subulados insertos a la misma altura que los estigmas (4, 5).

"La enumeración de las teriores características parece colocar la muestra en otro genero diferente de Paepalanthus. La unión de los segmentos del perianto parece mucho a la de Syngonanthus.

"Los ejemplares examinados fueron: Territorio Federal Amazonas, Santa Cruz, al mergen del Rio Atabapo, cerca de la boca del rio Atacaví, E. Foldats 3629; Edo. Bolivar, cerca de Campamento Guay-araca, alt. 1100 m., Auyantepui, Vareschi & Foldats 4727."

In view of this careful study, I think that the plant certainly represents a new genus, if, in fact, it is truly eriocaulaceous and am suggesting to Agostini that he name and describe it fully. Meanwhile, the known information about it is assembled here. Schultes & Cabrera found it growing "in tufts in water", flowering in September. Material has been misidentified and distributed in some herbaria as Syngonanthus heteropeplodes Herzog.

Agostini's drawings are reproduced by permission on page 139.

Citations: COLOMBIA: Vaupés: Schultes & Cabrera 17564 (N). VEN-EZUELA: Amazonas: Foldats 3629 (N—type, Ve—isotype. Bolivar: Vareschi & Foldats 4727 (Ve).

PAEPALANTHUS SCANDENS Ruhl. in Engl., Pflanzenreich 13 (4-30): 175—176, fig. 19. 1903.

Synonymy: Paepalanthus decumbens Ruhl. ex Moldenke, Résumé Suppl. 1: 20, in syn. 1959.

Bibliography: Ruhl. in Engl., Pflanzenreich 13 (4-30): 2, 9,

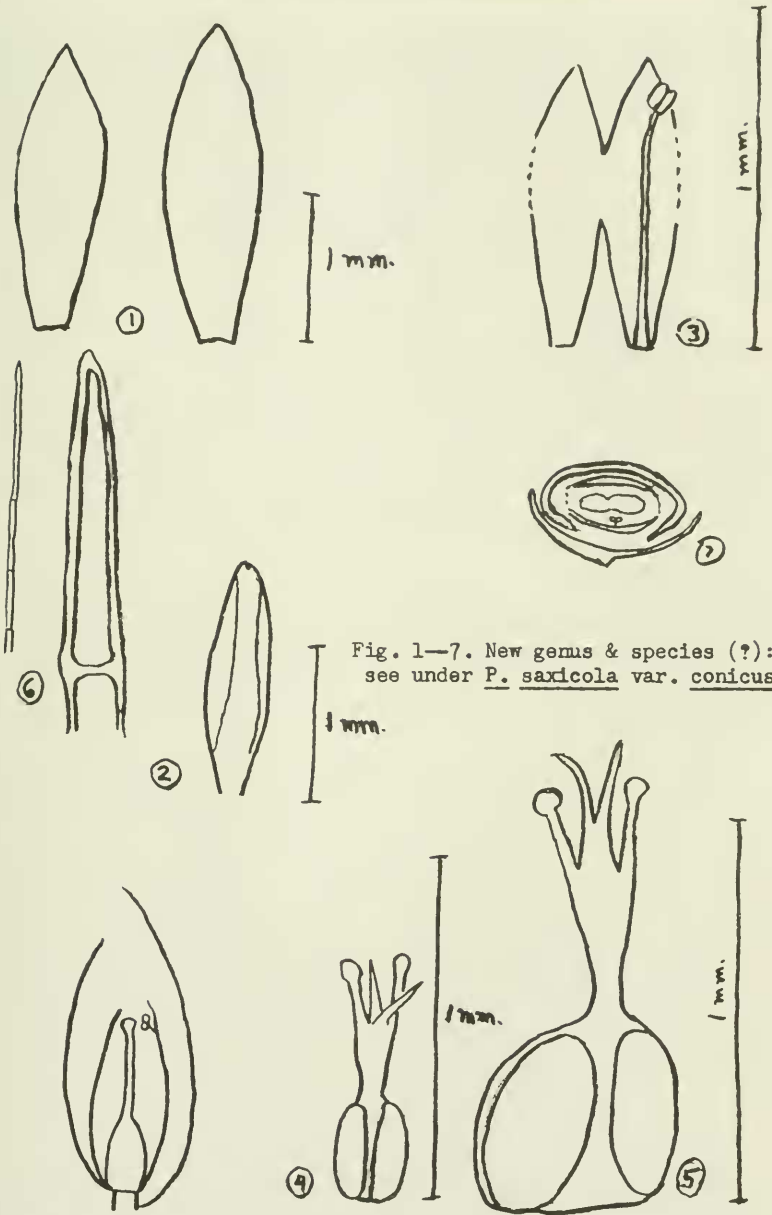


Fig. 1—7. New genus & species (?):  
see under P. saxicola var. conicus

173, 173—176, 284, & 291, fig. 19. 1903; Prain, Ind. Kew. Suppl. 3: 126. 1908; Ruhl. in Urb., Symb. Ant. 7: 173. 1912; Ruhl. in Engl. & Prantl, Nat. Pflanzenfam., ed. 2, 15a: 40, 42, & 51. 1930; Stapf, Ind. Lond. 4: 519. 1930; Moldenke, Known Geogr. Distrib. Erioc. 15 & 53. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 57 & 211. 1949; Moldenke in Dawson, Los Angeles Co. Mus. Contrib. Sci. 7: 6. 1957; Moldenke, Résumé 102 & 489. 1959; Moldenke, Résumé Suppl. 1: 6 & 20 (1959) and 12: 14. 1965; Tomlinson in C. R. Metcalfe, Anat. Monocot. 3: 167 & 190. 1969; Moldenke, Phytologia 20: 423 & 424. 1970; Moldenke, Fifth Summ. 1: 166 (1971) and 2: 580 & 957. 1971; Moldenke, Phytologia 26: 261 (1973) and 30: 83. 1975.

Illustrations: Ruhl. in Engl., Pflanzenreich 13 (4-30): 176, fig. 19. 1903.

This distinctive species was based by Ruhland (1903) on three collections from Goiás, Brazil: (1) Ule 3155 from "am Rande eines Capão (Sobradinho), Corumbagebiet 1100 m", (2) Glaziou 22295 "zwischen Cocal und As Brancas, im Gehölz", and (3) Glaziou 22296 [the number was inadvertently omitted in the original description] from "Cachoeira de Paranana, in feuchten Gehölz", deposited in the herbarium of the Botanisches Museum in Berlin. He comments that the "Species in ramos fruticum scandens ibique eleganter dependens". It bears striking resemblance in habit to P. glaziovii Ruhl. and P. gardnerianus Walp. Paepalanthus decumbens is apparently based on the same Ule 3155 collection, also deposited in the Berlin herbarium. The Irwin, Santos, Souza, & Fonsêca 24248, cited below, exhibits some rather different characters from the cotypes and may prove to represent an undescribed variety or form.

Recent collectors describe this plant as a slender herb to 35 cm. tall, semi-scandent to 50 cm. long, or a "long-stemmed subshrub to ca. 2 m. long", with the flower-heads and the individual flowers white, growing at altitudes of 1000—1550 meters, flowering in January, March to May, August, and November, and have found it in fruit in March and November. Irwin and his associates found it growing among grasses in cerrado, locally abundant in dense brejo grasses in a valley with cutover woodland and brejo, and on riacho margin in an area of cerrado and sandstone outcrops with adjacent wet campo (brejo). Héring and his associates describe it as abundant in thickets in moist areas, Dawson found it "in boggy spring near canyon bottom in sandstone area", and Anderson refers to it as "trailing in brush at edge of forest in an area of often inundated gallery forest and adjacent grassy campo with scattered trees and shrubs sloping down to the gallery forest.

Citations: BRAZIL: Bahia: Ule 7300 (B). Distrito Federal: Héring, Maguire, Murça Pires, & Silva 56190 (N); Irwin, Souza, & Reis dos Santos 10634 (Ac, N, W—2759014). Goiás: W. R. Anderson 6294 (Ld, N); E. Y. Dawson 14668 (Ld, Ln); Glaziou 22295 (B—cotype, Br—cotype, N—photo of cotype, S—cotype, Z—photo

of cotype), 22296 (B—cotype, Br—cotype, N—cotype); Irwin, Harley, & Smith 32762 (Ld, N); Irwin, Reis dos Santos, Souza, & Fonsêca 24248 (N, Z); Macedo 3583 (S, W—2059733); Ule 230 [Herb. Mus. Nac. Rio Jan. 29468] (S), 3155 (B—cotype).

PAEPALANTHUS SCHENCKII V. A. Pouls., Vidensk. Meddel. Naturh. For. Kjøbenh. 40 [ser. 4, 9]: 223. 1888.

Synonymy: Eupaepalanthus schenckii V. A. Pouls., Vidensk. Meddel. Naturh. For. Kjøbenh. 40 [ser. 4, 9]: 326—332. 1888.

Bibliography: V. A. Pouls., Vidensk. Meddel. Naturh. For. Kjøbenh. 40 [ser. 4, 9]: 223 & 326—332. 1888; Ruhl. in Engl., Pflanzenreich 13 (4—30): 5, 223, & 291. 1903; Moldenke, Known Geogr. Distrib. Erioc. 15 & 53. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 87 & 211. 1949; Moldenke, Phytologia 4: 203. 1963; Moldenke, Résumé 102, 294, & 489. 1959; Tomlinson in C. R. Metcalfe, Anat. Monocot. 3: 149, 161, 162, 166, 167, 174, & 189. 1969; Moldenke, Fifth Summ. 1: 166 (1971) and 2: 518 & 957. 1971.

Ruhland (1903) cites no material of this species and leaves it among his doubtfully distinct ones, saying "Species l. c. p. 326 seq. anatomicae descripta, sed haud recognoscenda". It is unknown to me except from the literature listed above.

PAEPALANTHUS SCHLIMII Körn. in Mart., Fl. Bras. 3 (1): 405—406. 1863.

Synonymy: Dupatya schlimii (Körn.) Kuntze, Rev. Gen. Pl. 2: 746. 1891. Dupatya schlimii Kuntze apud Durand & Jacks., Ind. Kew. Suppl. 1, imp. 1, 145. 1902.

Bibliography: Körn. in Mart., Fl. Bras. 3 (1): 405—406 & 508. 1863; Kuntze, Rev. Gen. Pl. 2: 746. 1891; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 1, 2: 402. 1894; Durand & Jacks., Ind. Kew. Suppl. 1, imp. 1, 145. 1902; Ruhl. in Engl., Pflanzenreich 13 (4—30): 201, 206, 284, & 291. 1903; Durand & Jacks., Ind. Kew. Suppl. 1, imp. 2, 145. 1941; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 2, 2: 402. 1946; Moldenke, Known Geogr. Distrib. Erioc. 5, 31, & 53. 1946; Moldenke, Alph. List Cit. 1: 134 (1946), 2: 580 & 611 (1948), 3: 809 (1949), and 4: 1076. 1949; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 61 & 211. 1949; Moldenke, Phytologia 4: 203. 1953; Durand & Jacks., Ind. Kew. Suppl. 1, imp. 3, 145. 1959; Moldenke, Résumé 68, 282, & 489. 1959; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 3, 2: 402. 1960; Moldenke, Résumé Suppl. 12: 3 (1965) and 18: 4. 1969; Moldenke, Fifth Summ. 1: 118, 125, & 485 (1971) and 2: 957. 1971; Moldenke, Phytologia 26: 231. 1973.

The type of this species was collected by Nicolas Funck and Louis Joseph Schlim (no. 1353) at La Baja, in the province of Pamplona, at 2700 meters altitude, Norte de Santander, Colombia, probably deposited in the Berlin herbarium. The species has been found growing at altitudes of 2600—3030 meters, flowering from January to March, in August and in November, fruiting in August. Recent collectors describe the plant as having a "stem" up to 3

dm. long" and have encountered it on high bushy ridges and in xerophilic woods in the transition area between *Quercetum humboldtii* and *Quercetum lindenii*, describing it as "*Acaulirosulatum rhizomatoso*; tallos florales fuertemente comprimidos lateralmente; flores blancas; frecuente en comunidades subseriales con visio-nomía de páramo (Espeletion)". Ruhland (1903) cites only the original collection.

Additional citations: COLOMBIA: Boyacá: Jaramillo-Mejía, Hernandez-Camacho, & Van der Hammen 821 (W-2577121). Norte de Santander: F. R. Fosberg 19159 (N, W-2165307); Killip & Smith 20621 (Ew). Santander: Killip & Smith 18895 (N, S, W-1354229). VENEZUELA: Mérida: Jahn 975 (W-112203).

*PAEPALANTHUS SCHOLIOPHYLLUS* Ruhl. in Engl., *Pflanzenreich* 13 (4-30): 172. 1903.

Synonymy: *Paepalanthus scholiophyllus* var. *minor* Ruhl. ex Moldenke, *Résumé Suppl.* 1: 22, in syn. 1959.

Bibliography: Ruhl. in Engl., *Pflanzenreich* 13 (4-30): 8, 168, 172, & 291. 1903; Chod. & Hassl., *Bull. Herb. Boiss.*, ser. 2, 3: 1033 & 1034. 1903; Chod. & Hassl., *Pl. Hassler.* 2: 255 & 256. 1903; Prain, *Ind. Kew. Suppl.* 3: 126. 1908; Ruhl. in Engl. & Prantl, *Nat. Pflanzenfam.*, ed. 2, 15a: 42. 1930; Moldenke, *Known Geogr. Distrib. Erioc.* 15 & 53. 1946; Moldenke, *Known Geogr. Distrib. Verbenac.*, [ed. 2], 84 & 211. 1949; Moldenke, *Phytologia* 4: 203-204. 1953; Moldenke, *Résumé* 102 & 489. 1959; Moldenke, *Résumé Suppl.* 1: 22. 1959; Moldenke, *Phytologia* 20: 365. 1970; Moldenke, *Fifth Summ.* 1: 166 (1971) and 2: 590 & 957. 1971.

The type of this species was collected by Auguste François Marie Glaziou (no. 22315) on dry campos at Capelinha do Santo Antonio, Goiás, Brazil, and is deposited in the Berlin herbarium where it was photographed by Macbride as his type photograph number 10643 [on at least some of the labels accompanying Macbride's photograph the Glaziou number is erroneously given as "22305"]. The type of var. *minor* is Glaziou 22302 in the same herbarium; *P. scholiophyllus* var. *balansae* Ruhl. and the *P. scholiophyllus* recorded by Chodat & Hassler (1903) from Paraguay, based on Hassler 4448 & 9499, are all *P. balansae* Ruhl.

Ruhland (1903) cites only the type collection, which was collected in anthesis in October, and comments that the "Species notis citatis insignis. Capitula ea *P. incani* Koern. imitantur, cui *P. scholiophyllus* revera affinis. Folia autem longe diversa sunt."

Citations: BRAZIL: Goiás: Glaziou 22302 [U. S. Nat. Herb. photo 5888] (B, N-photo, P, P), 22315 [Macbride photos 10643] (B-type, N-photo of type, N-photo of type, W-photo of type, Z-isotype).

*PAEPALANTHUS SCHOMBURGKII* Klotzsch in Schomb., *Reise Brit.-Guian.* 3: 1064. 1848.

Synonymy: *Dupatya schomburgkii* (Klotzsch) Kuntze, *Rev. Gen. Pl.*

2: 746. 1891. Dupatya schomburgkii Kuntze apud Durand & Jacks., Ind. Kew. Suppl. 1, imp. 1, 145. 1902.

Bibliography: Klotzsch in Schomb., Reise Brit.-Guian. [Vers. Fauna & Fl. Brit.-Guian.] 3: 1064. 1848; Körn. in Mart., Fl. Bras. 3 (1): 375, 391, 502, & 507. 1863; Benth. & Hook. f., Gen. Pl. 3 (2): 1023. 1883; Kuntze, Rev. Gen. Pl. 2: 746. 1891; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 1, 2: 402. 1894; N. E. Br., Trans. Linn. Soc. Lond. Bot., ser. 2, 6: 70. 1901; Burkill, Trans. Linn. Soc. Lond. Bot., ser. 2, 6: 13. 1901; Durand & Jacks., Ind. Kew. Suppl. 1, imp. 1, 145. 1902; Ruhl. in Engl., Pflanzenreich 13 (4-30): 125, 137, 223, 284, & 291. 1903; Durand & Jacks., Ind. Kew. Suppl. 1, imp. 2, 145. 1941; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 2, 2: 402. 1946; Moldenke, Known Geogr. Distrib. Erioc. 31, 54, & 60. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 64, 66, & 211. 1949; Durand & Jacks., Ind. Kew. Suppl. 1, imp. 3, 145. 1959; Moldenke, Résumé 72, 75, 282, & 489. 1959; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 3, 2: 402. 1960; Moldenke, Phytologia 20: 297. 1970; Moldenke, Fifth Summ. 1: 125, 130, & 485 (1971) and 2: 957. 1971; Moldenke, Phytologia 29: 388 (1974) and 30: 102. 1975.

The type of this apparently rare species was collected by Sir Moritz Richard Schomburgk (no. 1026) — in whose honor it was named — "am Südbahne des Roraima in einer Meershöhe von 6000 Fuss, auf sumpfigen Grasstellen zwischen Utricularia Humboldtii, Cypripedium und Heliampora", in Guyana, flowering in October and November. Klotzsch refers to it as a "Perennirendes Kraut".

Ruhland (1903) cites only the original collection, while Gleason, in his unpublished "Flora of British Guiana", says "P. Schomburgkii Klotzsch, based on an unnumbered collection by Schomburgk, has not been seen by us." Although the original description and Ruhland's treatment give no collection number for the type collection, yet it seems most probable that the Schomburgk 1026 in the Berlin herbarium, examined and dissected by Körnicke, is actually the type collection. Thus far the species is known only from this type collection.

Citations: GUYANA: M. R. Schomburgk 1026 (B—isotype, Z—isotype). MOUNTED ILLUSTRATIONS: drawings & notes by Körnicke (B).

PAEPALANTHUS SCHUECHIANUS Körn. in Mart., Fl. Bras. 3 (1): 369. 1863.

Synonymy: Paepalanthus schuchianus Körn. in Mart., Fl. Bras. 3 (1): 506. 1863. Paepalanthus schuchianus Körn. in Warm., Vidensk. Meddel. Naturh. Foren. Kjöbenh. 23: 312 [as "Schuchiano"]. 1871. Dupatya schuechiana (Körn.) Kuntze, Rev. Gen. Pl. 2: 746. 1891. Paepalanthus schuechianus Körn. apud Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 1, 2: 402, sphalm. 1894. Dupatya schuechiana Kuntze apud Durand & Jacks., Ind. Kew. Suppl. 1, imp. 1, 145. 1902. Paepalanthus schuechianus Körn. ex Moldenke, Known Geogr. Distrib. Erioc. 54, sphalm. 1946.

Bibliography: Körn. in Mart., Fl. Bras. 3 (1): 369 & 506. 1863;

Körn. in Warm., Vidensk. Meddel. Naturh. Foren. Kjöbenh. 23: 312. 1871; Kuntze, Rev. Gen. Pl. 2: 746. 1891; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 1, 2: 402. 1894; Durand & Jacks., Ind. Kew. Suppl. 1, imp. 1, 145. 1902; Ruhl. in Engl., Pflanzenreich 13 (4-30): 124, 133, 134, & 291. 1903; Durand & Jacks., Ind. Kew. Suppl. 1, imp. 2, 145. 1941; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 2, 2: 402. 1946; Moldenke, Known Geogr. Distrib. Erioc. 15 & 54. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 87 & 211. 1949; Durand & Jacks., Ind. Kew. Suppl. 1, imp. 3, 145. 1959; Moldenke, Résumé 102, 328, & 489. 1959; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 3, 2: 402. 1960; Moldenke, Fifth Summ. 1: 166 (1971) and 2: 590, 776--777, & 957. 1971; Moldenke, Phytologia 30: 86 (1975), 31: 396, 397, & 405 (1975), and 33: 53. 1976.

The type of this apparently rare species was collected by Guilherme Schüch de Capanema somewhere in eastern Brazil and is deposited in the herbarium of the Naturhistorisches Museum in Vienna, where it was photographed by Macbride as his type photograph number 29994. Ruhland (1903) cites only the original collection. Körnicke comments that the species "A. praecedentibus duobus [P. ovatus Körn. and P. neglectus Körn.] differt pilositate foliorum et bracteis involucrentibus minus acutis; a sequente [P. plantagineus (Bong.) Körn.] praeter pilositate, foliorum bracteis involucrentibus interioribus obovatis (nec latissime obovatis vel transverse ellipticis) et bracteis flores stipantibus anguste oblongis (nec latissime obovatis)."

Citations: BRAZIL: State undetermined: Schüch de Capanema s.n. [Macbride photos 29994] (N--photo of type, W--photo of type).  
MOUNTED ILLUSTRATIONS: drawings & notes by Körnicke (B).

PAEPALANTHUS SCHULTESII Moldenke, Bot. Mus. Leafl. Harv. Univ. 16: 65--66. 1953.

Bibliography: Moldenke, Bot. Mus. Leafl. Harv. Univ. 16: 65--66. 1953; Moldenke, Résumé 68 & 489. 1959; G. Taylor, Ind. Kew. Suppl. 12: 101. 1959; Moldenke, Fifth Summ. 1: 118 (1971) and 2: 957. 1971.

The type of this species was collected by Richard Evans Schultes (no. 1024) -- in whose honor it is named -- at the Quebrada de Chapinero, at an altitude of about 9000 feet, Macizo de Bogotá, Cundinamarca, Colombia, on September 24, 1941, and is deposited in the Britton Herbarium at the New York Botanical Garden. Collectors have found this plant growing on páramo slopes, in white sand, oozing water here and there, brushy hillsides, rocky ridges and ledges, and as occasional colonies in wet ground, at altitudes of 2615--3665 meters, flowering in September and November. The plants collected by Galen Smith and his associates, cited below, are almost completely hairless.

Material of this species has been misidentified and distributed in some herbaria as P. dendroides Kunth.

Citations: COLOMBIA: Cundinamarca: E. L. Core 5 (We); Killip 34090 (N, S); R. E. Schultes 1024 (N--type); Smith, Idrobo, & Jara-

nillo Mejia 1059 (N, W--2047424). Norte de Santander: F. R. Fosberg 19185 (N). MOUNTED CLIPPINGS: Moldenke, Bot. Mus. Leaflet. Harv. Univ. 16: 65--66. 1953 (Mu).

PAEPALANTHUS SCHWACKEANUS Ruhl. in Engl., Pflanzenreich 13 (4-30): 193--194. 1903.

Synonymy: Paepalanthus schwackeanus Ruhl. ex Moacyr do Amaral Lisboa, Revist. Esc. Minas 8 April, sphalm. 1951.

Bibliography: Ruhl. in Engl., Pflanzenreich 13 (4-30): 189, 193--194, & 291. 1903; Prain, Ind. Kew. Suppl. 3: 126. 1908; Alv. Silv., Fl. Mont. 1: 224 & 413. 1928; Moldenke, Known Geogr. Distrib. Erioc. 15 & 54. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 87 & 211. 1947; Moacyr do Amaral Lisboa, Revist. Esc. Minas 8 April. 1951; Moldenke, Résumé 102 & 489. 1959; Moldenke, Fifth Summ. 1: 167 (1971) and 2: 957. 1971.

This species was based on two collections made by Carl August Wilhelm Schwacke -- in whose honor it is named -- in Minas Gerais, Brazil, and deposited in the Berlin herbarium: (1) no. 7623 from Serra de Lavras Novas in November, 1891, and (2) no. 13847 from "auf thonigen Campos der Serra de Itataia, bei Chapada", flowering in October. Silveira (1928) cites A. Silveira 468, also from Lavras Novas, collected in 1927.

Ruhland (1903) comments that the "Species a P. falcifolio Koern. vaginis obsolete (usque 3-) nervosis, transverse truncatis, ore glabris vel pilis perpaucis vix ciliolatis (nec ibi profunde incisis, laciniis acutis et pilorum fasciculo coronatis nec perspicue fuscis, 5--7-nerviis). A P. stereophyllo Ruhl. pilis non tuberculatis (granulatis) perigoniorum, bracteis involucrentibus et flores stipantibus latioribus et sepalis obtusis floris 6. Tamen fortasse melius P. Schwackeanus et stereophyllus varietates P. falcifolii habendae."

Citations: BRAZIL: Minas Gerais: Schwacke 7623 (B--cotype), 13874 (B--cotype, Z--cotype).

PAEPALANTHUS SCHWACKEANUS var. GLABRESCENS Alv. Silv., Fl. Mont. 1: 224. 1928.

Synonymy: Paepalanthus schwackeanus var. glabrecens Alv. Silv., Fl. Mont. 1: 413, sphalm. 1928.

Bibliography: Alv. Silv., Fl. Mont. 1: 224 & 413. 1928; Moldenke, Geogr. Distrib. Erioc. 15 & 54. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 87 & 211. 1949; Moldenke, Résumé 102, 328, & 489. 1959; Moldenke, Fifth Summ. 1: 167 (1971) and 2: 590 & 957. 1971.

The type of this variety was collected by Dr. Benedicto dos Santos "In Serra de Lavras Novas prope Ouro Preto", Minas Gerais, Brazil, in April, 1926, and is no. 795 in the A. Silveira herbarium. On page 413 of his work, Silveira (1928) gives the date of collection of the type as "1927", but if this is a misprint or is meant to be a correction of the date given on page 422 is not clear. The variety is said by him to differ from the typical form of the



species in having its "Pedunculi ab initio glabri". Thus far it is known only from the original collection.

It should be noted that on page 224 of his work, Silveira (1928) cites a plate "CXLVII" as illustrating this taxon, but plate 147 in his work actually represents P. tuberculatus Alv. Silv. instead, and there seems to be no illustration anywhere in the work of P. schwackeanus var. glabrescens nor is one listed in the "Index Londinensis" supplement.

PAEPALANTHUS SCIRPEUS Mart. ex Körn. in Mart., Fl. Bras. 3 (1): 364—365. 1863.

Synonymy: Dupatya scirpea (Mart.) Kuntze, Rev. Gen. Pl. 2: 746. 1902. Dupatya scirpea Kuntze apud Durand & Jacks., Ind. Kew. Suppl. 1, imp. 1, 145. 1902. Paepalanthus scirpens Mart. ex Rennó, Levant. Herb. Inst. Agron. 71, sphalm. 1960.

Bibliography: Körn. in Mart., Fl. Bras. 3 (1): 364—365 & 507. 1863; Körn. in Warm., Vidensk. Meddel. Naturh. Foren. Kjöbenh. 23: 311. 1871; Kuntze, Rev. Gen. Pl. 2: 746. 1891; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 1, 2: 402. 1894; Durand & Jacks., Ind. Kew. Suppl. 1, imp. 1, 145. 1902; Ruhl. in Engl., Pflanzenreich 13 (4-30): 124, 133, 284, & 291. 1903; Alv. Silv., Fl. Mont. 1: 103 & 413. 1928; Durand & Jacks., Ind. Kew. Suppl. 1, imp. 2, 145. 1941; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 2, 2: 402. 1946; Moldenke, Known Geogr. Distrib. Erioc. 15, 31, & 54. 1946; Moldenke, Alph. List Cit. 2: 412 (1948) and 3: 935. 1949; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 87 & 211. 1949; Moldenke, Phytologia 4: 204. 1953; Durand & Jacks., Ind. Kew. Suppl. 1, imp. 3, 145. 1959; Moldenke, Résumé 102, 282, & 489. 1959; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 3, 2: 402. 1960; Rennó, Levant. Herb. Inst. Agron. Minas 71. 1960; Moldenke, Résumé Suppl. 3: 34. 1962; Moldenke, Phytologia 20: 362. 1970; Moldenke, Fifth Summ. 1: 167 & 485 (1971) and 2: 590 & 957. 1971.

This species is based on an unnumbered Martius collection from "In udis. irreguis Serra de Mantanha et prope Itambé do Serro Frio, Apr. Maio 1818" [apparently actually two collections], Minas Gerais, Brazil, deposited in the herbarium of the Botanische Staatssammlung in Munich where the type was photographed by Macbride as his type photograph number 18726. Ruhland (1903) cites in addition "Furst v. Neuwied u. a." and Warming s.n. from the same state. Körnicke, in his 1871 work, also cites the Warming collection.

The species has been encountered in moist inundated areas at altitudes of 1000—1300 meters, flowering in April and May. Warming collected it "in monte Serra da Piedade" at 4000—5000 ft. altitude. Silveira (1928) cites A. Silveira 346, collected in the Serra do Cipó in 1905.

Additional citations: BRAZIL: Minas Gerais: Martius s.n. [Serra de Mantanha & Itambé; Macbride photos 18726] (B—isotype, Mu—type, N—photo of type, N—photo of type, W—photo of type, Z—

isotype); Mello Barreto s.n. [Herb. Jard. Bot. Belo Horiz. 26496] (N); J. E. Pohl s.n. [in Brasilia] (Mu); A. Silveira 347 [Herb. Marie-Victorin 15839] (N—photo, Z—photo). MOUNTED ILLUSTRATIONS: drawings & notes by Körnicke (B).

PAEPALANTHUS SCLERANTHUS Ruhl. in Engl., Pflanzenreich 13 (4-30): 199—200, fig. 28. 1903.

Synonymy: Thelxinoë scleranthus Ruhl. ex Moldenke, Résumé Suppl. 1: 23, in syn. 1959.

Bibliography: Ruhl. in Engl., Pflanzenreich 13 (4-30): 12, 199—200, & 291, fig. 28. 1903; Prain, Ind. Kew. Suppl. 3: 126. 1908; Alv. Silv., Fl. Mont. 1: 413. 1928; Ruhl. in Engl. & Prantl, Nat. Pflanzenfam., ed. 2, 15a: 40, 41, & 52. 1930; Stapf, Ind. Lond. 4: 519. 1930; Castell. in Descole, Gen. & Sp. Pl. Argent. 3: 75 & 104. 1945; Moldenke, Known Geogr. Distrib. Erioc. 15 & 54. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 87 & 211. 1949; Moldenke, Phytologia 4: 204. 1953; Mendes Magalhães, Anais V Reun. Annual Soc. Bot. Bras. 295. 1956; Bourdu, Bull. Soc. Bot. France 104: 156. 1957; Moldenke, Résumé 102 & 489. 1959; Moldenke, Résumé Suppl. 1: 23. 1959; Rennó, Levant. Herb. Inst. Agron. Minas 71. 1960; Moldenke, Phytologia 19: 35. 1969; Moldenke, Fifth Summ. 1: 167 (1971) and 2: 642 & 957. 1971; Moldenke, Phytologia 30: 46. 1975.

Illustrations: Ruhl. in Engl., Pflanzenreich 13 (4-30): 200, fig. 28. 1903.

From the original description it would appear that this species is based on four separate collections as cotypes: (1) Ule 2717 from "auf Felsen der Serra de Caraça", collected in March, 1892, (2) Ule 2714 from "auf sumpfigem Boden in der Serra do Ouro Preto", also collected in flower in March, (3) Schwacke 11987 from "in der Serra das Camarinhas", and (4) Glaziou 19990 from "Perpetua bei Diamantina zwischen Felsen", flowering in April, all these localities being in Minas Gerais, Brazil, and the specimens deposited in the Berlin herbarium. From Ruhland's original annotations, however, it would appear that Glaziou 19990 was the collection which he originally intended as the type (not only of this species, but also of what he intended to call a genus Thelxinoë) since it is annotated by him as "Thelxinoë Scleranthus Ruhl., n. g. et sp." Macbride photographed a specimen of this collection in the Copenhagen herbarium as his type photograph number 22294. Silveira (1928) cites A. Silveira 336 from the Serra do Cipó, Minas Gerais.

The species is obviously very closely related and similar to P. leucocephalus Ruhl. Ruhland (1903) distinguishes them as follows:

- "A. Capitula nigra vel saturate griseo-olivacea; floris feminei petala 2, ovata, rotundato-obtusa.....P. scleranthus.  
B. Capitula pellucide alba; floris feminei petala 2, lineari-spathulata, apice truncata et fere emarginata.....  
P. leucocephalus."

Additional citations: BRAZIL: Minas Gerais: Glaziou 19990 [Mac-

bride photos 22294] (B—cotype, Br—cotype, N—photo of cotype, W—photo of cotype); Mello Barreto 1045 [Brade 14480; Herb. Jard. Bot. Rio Jan. 28457] (B); Schwacke 11987 (B—cotype); Ule 2714 (B—cotype).

PAEPALANTHUS SCOPULIFER Alv. Silv., Fl. Mont. 1: 98—99. 1928.

Bibliography: Alv. Silv., Fl. Mont. 1: 98—99 & 413. 1928; A. W. Hill, Ind. Kew. Suppl. 9: 200. 1938; Moldenke, Known Geogr. Distrib. Erioc. 15 & 54. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 87 & 211. 1949; Moldenke, Résumé 102 & 489. 1959; Moldenke, Fifth Summ. 1: 167 (1971) and 2: 957. 1971.

The type of this species was collected by Álvaro Adolpho da Silveira (no. 611) "In locis humidis humosisque in Serra do Caparaó, altitudine 2700 m", Minas Gerais, Brazil, in April, 1913, and is deposited in the Silveira herbarium. Silveira (1928) comments that the "Flores masculi quam feminei in capitulis suppetentibus plures. Species indumento et sulcis foliorum ab affinis valde distincta." On page 413 of his work he cites a "Silveira 1913" from Caparaó, Minas Gerais, Brazil, collected in 1913. It is not clear to me whether this actually represents another collection from the type locality or if it is (more likely) a printer's error wherein the year of collection was substituted for the collection number, 611.

PAEPALANTHUS SCOPULORUM Moldenke, Phytologia 2: 380, nom. nud. (1947), Alph. List Cit. 3: 975, hyponym (1949), Fieldiana Bot. 28: 122—124. 1951.

Bibliography: Moldenke, Phytologia 2: 380. 1947; Moldenke, Alph. List Cit. 3: 975. 1949; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 64 & 211. 1949; Moldenke, Fieldiana Bot. 28: 122—124. 1951; Moldenke, Phytologia 4: 204. 1953; J. A. Steyermark, Fieldiana Bot. 28: 1157. 1957; Moldenke, Résumé 72 & 489. 1959; G. Taylor, Ind. Kew. Suppl. 12: 101. 1959; Moldenke, Résumé Suppl. 11: 4. 1964; J. A. Steyermark, Act. Bot. Venez. 1: 72, 73, 75, 94, & 223. 1966; Moldenke, Phytologia 20: 363. 1970; Moldenke, Fifth Summ. 1: 125 (1971) and 2: 957. 1971.

The type of this species was collected by Julian Alfred Steyermark (no. 59914) in dense colonies and masses on wet bluffs along the face of south-facing sandstone bluffs on Ptari-tepí, at an altitude of 2410 meters, Bolívar, Venezuela, on November 6, 1944, deposited in the Britton Herbarium at the New York Botanical Garden. The collector notes that it is one of the commonest species on the bluffs. It resembles P. killipii Moldenke, from Colombia, in habit, but is abundantly distinct in characters of the leaves, peduncles, and flowers. Maguire reports it "forming dense mats in spray at foot of falls", while Steyermark & Wurdack describe it as locally frequent on riverbanks, the "stems elongated; leaves flaccid, grass-green; involucre black". It has been encountered at altitudes of 1600—2410 meters, flowering in January, July, and November.

Material of this species has been misidentified and distributed in some herbaria as P. tatei Moldenke.

Additional citations: VENEZUELA: Bolívar: Agostini & Koyama 7437 (N, N); Cardona 1578 (Ve); Foldats 2627 (Ve—40464); C. K. Maguire 33045 (Mu, N); Pannier & Schwabe s.n. [Auyantepui] (Ve); Steyermark & Wurdack 1080 (N); Vareschi & Foldats 2627 (N).

PAEPALANTHUS SCOPULORUM var. AUYANTEPUIENSIS Moldenke, Résumé Suppl. 11: 4, nom. nud. (1964), Act. Bot. Venez. 2: 153. 1967.

Bibliography: Moldenke, Résumé Suppl. 11: 4. 1964; Moldenke, Act. Bot. Venez. 2: 153. 1967; Moldenke, Phytologia 20: 363. 1970; Moldenke, Fifth Summ. 1: 125 (1971) and 2: 957. 1971.

Citations: VENEZUELA: Bolívar: J. A. Steyermark 93957a (Z—type).

PAEPALANTHUS SCYTOPHYLLUS Ruhl. in Engl., Pflanzenreich 13 (4-30): 171. 1903.

Synonymy: Paepalanthus scythophyllus Ruhl. ex Rennó, Levant. Herb. Inst. Agron. Minas 71, sphalm. 1960. Paepalanthus scythophyllus Ruhl. ex Moldenke, Fifth Summ. 2: 590, in syn. 1971.

Bibliography: Ruhl. in Engl., Pflanzenreich 13 (4-30): 6, 168, 171, & 191, fig. 1. 1903; Prain, Ind. Kew. Suppl. 3: 126. 1908; Moldenke, Known Geogr. Distrib. Erioc. 15 & 54. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 87 & 211. 1949; Moldenke, Résumé 102 & 489. 1959; Rennó, Levant. Herb. Inst. Agron. Minas 71. 1960; Moldenke, Résumé Suppl. 3: 34. 1962; Tomlinson in C. R. Metcalfe, Anat. Monocot. 3: 148 & 190. 1969; Moldenke, Fifth Summ. 1: 167 (1971) and 2: 590 & 957. 1971; Moldenke, Phytologia 31: 405. 1975.

Illustrations: Ruhl. in Engl., Pflanzenreich 13 (4-30): 6, fig. 1. 1903.

This species is based on two collections by Auguste François Marie Glaziou: (1) no. 19971 from dry campos at Pinheiro and (2) no. 19967 from campos at Tombador near Diamantina, Minas Gerais, Brazil, deposited in the Berlin herbarium where the latter was photographed by Macbride as his type photograph number 10644. Ruhland (1903) cites only these two collections and comments that the species is "Proxime affinis cum specie praecedente [P. macrocephalus (Bong.) Körn.]. Bracteeae involucrantes, rami fertiles longiores, capitula minora, indumentum persistens foliorum insignis."

Citations: BRAZIL: Minas Gerais: Glaziou 19967 [Macbride photos 10644] (B—cotype, N—photo of cotype, N—photo of cotype, W—photo of cotype, Z—cotype), 19971 (B—cotype); Mendes Magalhães 2539 [Herb. Jard. Bot. Belo Horiz. 43816] (N).

PAEPALANTHUS SEDOIDES Körn. in Mart., Fl. Bras. 3 (1): 352. 1863.

Synonymy: Dupatya sedodes (Mart.) Kuntze, Rev. Gen. Pl. 2: 746. 1891. Dupatya sedodes Kuntze ex Durand & Jacks., Ind. Kew. Suppl.

1, imp. 1, 145. 1902. Dupatya sedoides Kuntze apud Ruhl. in Engl., Pflanzenreich 13 (4-30): 163, in syn. 1903.

Bibliography: Körn. in Mart., Fl. Bras. 3 (1): 351, 352, & 507. 1863; Kuntze, Rev. Gen. Pl. 2: 746. 1891; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 1, 2: 402. 1894; Durand & Jacks., Ind. Kew. Suppl. 1, imp. 1, 145. 1902; Ruhl. in Engl., Pflanzenreich 13 (4-30): 163, 284, & 291. 1903; Durand & Jacks., Ind. Kew. Suppl. 1, imp. 2, 145. 1941; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 2, 2: 402. 1946; Moldenke, Known Geogr. Distrib. Erioc. 15, 31, & 54. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 87 & 211. 1949; Durand & Jacks., Ind. Kew. Suppl. 1, imp. 3, 145. 1959; Moldenke, Résumé 102, 282, & 489. 1959; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 3, 2: 402. 1960; Moldenke, Résumé Suppl. 18: 9. 1969; Moldenke, Fifth Summ. 1: 167 & 485 (1971) and 2: 957. 1971; Moldenke, Phytologia 31: 397. 1975.

The type of this species was collected by Hugh Algernon Weddell (no. 3013) "auf feuchten Felsen von rotem Sandstein", in Mato Grosso, Brazil. Ruhland (1903) says of this taxon: "Species mihi ignota", so the type apparently was not deposited either in Berlin or Munich. The species is known thus far only from the original collection and is said to be related to P. supinus Körn., P. acantholimon Ruhl., and P. aretioides Ruhl. from which it is distinguished by a key on page 163 of Ruhland's monograph.

Citations: BRAZIL: Mato Grosso: Weddell 3013 [18] (Br--isotype, N--isotype).

PAEPALANTHUS SELLOWIANUS Körn. in Mart., Fl. Bras. 3 (1): 326. 1863.

Synonymy: Paepalanthus ciliatus Kunth ex Körn. in Mart., Fl. Bras. 3 (1): 326, in syn. 1863 [not P. ciliatus Kunth ex Körn. op. cit. 323. 1863]. Paepalanthus sellowianum Kunth ex Körn. in Mart., Fl. Bras. 3 (1): 279, sphalm. 1863. Dupatya sellowiana (Körn.) Kuntze, Rev. Gen. Pl. 2: 746. 1891. Dupatya sellowiana Kuntze apud Durand & Jacks., Ind. Kew. Suppl. 1, imp. 1, 145. 1902. Paepalanthus sellowianus Körn. ex Alv. Silv., Fl. Mont. 1: 413. 1928.

Bibliography: Körn. in Mart., Fl. Bras. 3 (1): 279, 326, & 507. 1863; Kuntze, Rev. Gen. Pl. 2: 746. 1891; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 1, 2: 402. 1894; Durand & Jacks., Ind. Kew. Suppl. 1, imp. 1, 145. 1902; Ruhl. in Engl., Pflanzenreich 13 (4-30): 9, 189, 192, 284, & 292. 1903; Alv. Silv., Fl. Mont. 1: 413. 1928; Ruhl. in Engl. & Prantl, Nat. Pflanzenfam., ed. 2, 15a: 42. 1930; Durand & Jacks., Ind. Kew. Suppl. 1, imp. 2, 145. 1941; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 2, 2: 402. 1946; Moldenke, Known Geogr. Distrib. Erioc. 15, 31, & 54. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 87 & 211. 1949; Angely, Fl. Paran. 10: 5 & 14. 1957; Durand & Jacks., Ind. Kew. Suppl. 1, imp. 3, 145. 1959; Moldenke, Résumé 102, 282, 328, & 489. 1959; Angely, Fl. Paran. 16: 66. 1960; Jacks. in Hook. f.

& Jacks., Ind. Kew., imp. 3, 2: 402. 1960; Angely, Fl. Paran. 17: 24. 1961; Angely, Fl. Anal. Paran., ed. 1, 200. 1965; Tomlinson in C. R. Metcalfe, Anat. Monocot. 3: 190. 1969; Moldenke, Fifth Summ. 1: 167 & 485 (1971) and 2: 590 & 957. 1971; Angely, Fl. Anal. & Fitogeogr. Est. S. Paulo, ed. 1, 6: 1160 and Ind. 21. 1972; Moldenke, Phytologia 29: 305 (1974) and 31: 404. 1975.

The type of this species is an unnumbered collection made by Friedrich Sellow in São Paulo, Brazil, according to Körnicke's original (1863) description; however, Ruhland (1903) is of the opinion that Sellow 5149 in the Berlin herbarium, from campos at Caxambu, Paraná, is the type collection and it was photographed in Berlin by Macbride as his type photograph number 10645. Silveira (1928) cites, in addition, A. Silveira 593 from the Serra da Moeda, Minas Gerais, collected in 1910. Ruhland (1903) comments that "Nomen Kunthianum determinations falsa modo in herbario Berolinensi datum commemoravi quia jam apud cl. Koernicke invenitur. — Specimen caule elongato, ramos multos fertiles proferente, insigne a me quoque visum est. Consentior cum cl. Koernicke, qui illud casu externo quodam (violatione etc.) contra naturam evolutum esse censet."

Material has been misidentified and distributed in some herbaria as Eriocaulon ciliatum Bong.

Citations: BRAZIL: Paraná: Sellow 5149 [Macbride photos 10645] (B—type, B—isotype, Br—type, Br—type, N—photo of isotype, N—photo of isotype, N—photo of isotype, N—photo of isotype, W—photo of isotype, Z—type, Z—photo of isotype). MOUNTED ILLUSTRATIONS: drawings & notes by Körnicke (B).

PAEPALANTHUS SENAENUS Ruhl. in Engl., Pflanzenreich 13 (4-30): 219. 1903.

Synonymy: Paepalanthus mirabilis Alv. Silv., Fl. Serr. Min. 61, pl. 22. 1908. Paepalanthus mirabilis var. ramosa Alv. Silv., Fl. Serr. Min. 62. 1908. Paepalanthus arnisii Ruhl. ex Moldenke, Phytologia 4: 205, in syn. 1953. Paepalanthus mirabilis var. ramosus Alv. Silv. ex Moldenke, Résumé Suppl. 1: 21, in syn. 1959.

Bibliography: Ruhl. in Engl., Pflanzenreich 13 (4-30): 5, 17, 214, 219, & 292, fig. 31. 1903; Prain, Ind. Kew. Suppl. 3: 126. 1908; Alv. Silv., Fl. Serr. Min. 61—62, pl. 22. 1908; Fedde & Schust. in Just, Bot. Jahresber. 46 (2): 5. 1924; Alv. Silv., Fl. Mont. 1: 254—256, 259, 263, 410, & 413, pl. 169. 1928; Ruhl. in Engl. & Prantl, Nat. Pflanzenfam., ed. 2, 15a: 53. 1930; Stapf, Ind. Lond. 4: 518 & 519. 1930; A. W. Hill, Ind. Kew. Suppl. 8: 169. 1933; Wangerin in Just, Bot. Jahresber. 57 (1): 476. 1937; Worsdell, Ind. Lond. Suppl. 2: 183. 1941; Moldenke, Known Geogr. Distrib. Erioc. 14, 15, 51, & 54. 1946; Moldenke, Alph. List Cit. 2: 412 (1948) and 3: 935. 1949; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 86, 87, 210, & 211. 1949; Moldenke, Phytologia 4: 152 (1952) and 4: 205. 1953; Moldenke, Résumé 100, 102, 326, 488, & 489. 1959; Moldenke, Résumé Suppl. 1: 6, 19, 21, & 26 (1959) and 2: 9. 1960; Tomlinson in C. R. Metcalfe, Anat. Monocot. 3: 159 &

190. 1969; Moldenke, Fifth Summ. 1: 167 (1971) and 2: 577, 586, & 957. 1971; Moldenke, Phytologia 26: 200 & 232 (1973) and 30: 270. 1975.

Illustrations: Ruhl. in Engl., Pflanzenreich 13 (4-30): 219, fig. 31. 1903; Alv. Silv., Fl. Serr. Min. pl. 22. 1908; Alv. Silv., Fl. Mont. 1: pl. 169. 1928.

Cotypes of *P. senaeanus* were collected by E. B. Sena [Herb. Schwacke 12279 & 14546] in the Serra do Cipó, Minas Gerais, Brazil, deposited in the Berlin herbarium. The type of *P. mirabilis* was collected by Álvaro Adolpho da Silveira (no. 368) "In campis arenosis in Serra do Cipó" in April, 1905, also deposited in the Berlin herbarium and that of *P. mirabilis* var. *ramosa* by the same collector (no. 371) from "In campis in Serra do Cipó", also in April of 1905 and in the same herbarium. On page 413 of his 1928 work Silveira cites *A. Silveira* 262, also from the Serra do Cipó, collected in 1905, as *P. senaeanus* (rather than as *P. mirabilis* or its variety), indicating that he regarded his taxa as distinct from that of Ruhland. On page 258 he cites plate "CLXIX" as illustrating *P. chrysolepis* Alv. Silv., when actually is illustrates his *P. mirabilis* — *P. chrysolepis* is depicted on plate 170 [prim.] He differentiates his var. *ramosa* as follows: "A *P. Senaeano* ob antheras nigras et habitum robustiorem praecipue differt".

The *Foster & Mello Barreto* 10841, cited below, was previously cited erroneously by me (1953) as *P. stellaris* (Guill.) Kunth, a species of very similar general appearance and habit, in spite of the fact that Ruhland (1903) says of *P. senaeanus* "Species pulcherrima atque facillime dignoscenda" — very pretty it certainly is!

It has been collected in anthesis in April, June, and July.

Citations: BRAZIL: Minas Gerais: *Foster & Mello Barreto* 10841 (N); *Maguire, Mendes Magalhães, & Maguire* 49103 (N); *Mello Barreto* 10488 [Brade 14477; Herb. Jard. Bot. Rio Jan. 28454] (B); *Sena* s.n. [Herb. Schwacke 12279] (B—cotype), s.n. [Herb. Schwacke 14546] (B—cotype, Z—cotype); *A. Silveira* 368 [Herb. Marie-Victorin 15832] (N, N—photo, Z), 371 (B, Z); *L. B. Smith* 6836 (Z).

PAEPALANTHUS SERICEUS Alv. Silv., Fl. Mont. 1: 84—85, pl. 50. 1928.

Bibliography: Alv. Silv., Fl. Mont. 1: 84—85 & 413, pl. 50. 1928; Wangerin in Ruhl., Bot. Jahresber. 57 (1): 477. 1937; A. W. Hill, Ind. Kew. Suppl. 9: 200. 1938; Worsdell, Ind. Lond. Suppl. 2: 184. 1941; Moldenke, Known Geogr. Distrib. Erioc. 15 & 54. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 87 & 211. 1949; Moldenke, Résumé 102 & 489. 1959; Moldenke, Fifth Summ. 1: 167 (1971) and 2: 957. 1971.

Illustrations: Alv. Silv., Fl. Mont. 1: pl. 50. 1928.

The type of this species was collected by Álvaro Adolpho da Silveira (no. 763) "In campis arenosis prope Grão Mogol", Minas Gerais, Brazil, in July, 1926, and is deposited in the Silveira

herbarium. Irwin and his associates describe the species as a "rosette herb, the lateral flowering branches to 15 cm. tall, heads grayish" and found it to be "locally common in seasonal brooks on steep cerrado hillsides" at 1000 meters altitude, flowering in October.

Citations: BRAZIL: Distrito Federal: Irwin, Souza, & Reis dos Santos 9592 (W-2759015, Z).

PAEPALANTHUS SERICIFOLIUS Alv. Silv., Fl. Serr. Min. 56. 1908.

Bibliography: Alv. Silv., Fl. Serr. Min. 56. 1908; Fedde & Schust. in Just, Bot. Jahresber. 46 (2): 4. 1924; A. W. Hill, Ind. Kew. Suppl. 8: 169. 1933; Moldenke, Known Geogr. Distrib. Erioc. 15 & 54. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 83 & 211. 1949; Moldenke, Résumé 102 & 489. 1959; Moldenke, Fifth Summ. 1: 167 (1971) and 2: 957. 1971.

This species is based on A. Silveira 363 from "Secus margines rivulorum in Serra do Cipó", Minas Gerais, Brazil, collected in April of 1950, and deposited in the Silveira herbarium. The species is known thus far only from the original collection.

PAEPALANTHUS SERRALAPENSIS Moldenke, Known Geogr. Distrib. Erioc. 62. 1946.

Synonymy: Eriocaulon latifolium Bong., Mém. Acad. Imp. Sci. St. Pétersb., ser. 6, 1: 631. 1831 [not E. latifolium Arech., 1902, nor Nees, 1900, nor J. E. Sm., 1809]. Paepalanthus latifolium Körn. in Mart., Fl. Bras. 3 (1): 344. 1863. Dupatya latifolia (Bong.) Kuntze, Rev. Gen. Pl. 2: 746. 1891. Dupatya latifolia Kuntze apud Durand & Jacks., Ind. Kew. Suppl. 1, imp. 1, 145. 1902. Paepalanthus latifolius (Bong.) Körn. ex Ruhl. in Engl., Pflanzenreich 13 (4-30): 216. 1903.

Bibliography: Bong., Mém. Acad. Imp. Sci. St. Pétersb., ser. 6, 1: 631. 1831; Bong., Ess. Monog. Erioc. 31. 1831; Steud., Nom. Bot., ed. 2, 1: 585. 1840; Kunth, Enum. Pl. 3: 575-577 & 613. 1841; D. Dietr., Syn. Pl. 5: 267. 1852; Steud., Syn. Pl. Glum. 2: [Cyp.] 282 & 334. 1855; Körn. in Mart., Fl. Bras. 3 (1): 344-345, 507, & 508. 1863; Kuntze, Rev. Gen. Pl. 2: 746. 1891; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 1, 1: 878 (1893) and imp. 1, 2: 402. 1894; Durand & Jacks., Ind. Kew. Suppl. 1, imp. 1, 145. 1902; Ruhl. in Engl., Pflanzenreich 13 (4-30): 213, 216, 284, 286, & 290. 1903; Alv. Silv., Fl. Mont. 1: 266. 1928; Durand & Jacks., Ind. Kew. Suppl. 1, imp. 2, 145. 1941; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 2, 1: 878 (1946) and imp. 2, 2: 402. 1946; Moldenke, Known Geogr. Distrib. Erioc. 15, 30, 36, 40, 50, 61, & 62. 1946; Moldenke, Phytologia 2: 380. 1947; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 88 & 211. 1949; Moldenke, Phytologia 4: 204. 1953; E. J. Salisb., Ind. Kew. Suppl. 11: 176. 1953; Durand & Jacks., Ind. Kew. Suppl. 1, imp. 3, 145. 1959; Moldenke, Résumé 102, 280, 292, 326, & 489. 1959; Moldenke, Résumé Suppl. 1: 21. 1959; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 3, 1: 878 (1960) and imp. 3, 2: 402. 1960; Moldenke, Phytologia 18: 259 (1969), 19: 324 (1970), and 20: 25, 356, & 361. 1970.

[to be continued]